

## ABSTRACT

There is provided a new signal processing device that uses functions appropriate to signal properties to acquire 5 high-quality signals. The signal processing device includes a sampling circuit 2 that samples an input signal and outputs a discrete signal, multiple function generators 3 that generate multiple sampling functions with parameters  $m$  different from each other, plural inner product operating units 4 for each 10 of the parameters  $m$  that take an inner product between the input signal and each of plural sampling functions and output an inner product operating value, and a judging unit 8 that determines parameter  $m$  providing a minimum error out of multiple errors composed of differences between the sampling value and inner 15 product operating values output from the multiple inner product operating units and outputs the parameter  $m$  signal. The signal processing device outputs a discrete signal composed of a string of the sampling values and the parameter  $m$  signal.